

# ME 345: Instrumentation, Measurements, and Statistics

## Syllabus for Spring Semester 2008

Latest update: 09 January 2008

<b>Lectures:</b>	<b>Room 26 Hosler Building</b> , three times per week, <b>Mon, Wed., and Fri., 11:15 a.m. - 12:05 a.m.</b>
<b>Labs:</b>	<b>Room 237 Reber Building</b> , once per week, 3 hours (times vary according to section number)
<b>Text:</b>	<i>No required text – all necessary notes and lab manuals are provided on the course website</i>
<b>Prerequisites:</b>	<b>EE 305</b> or equivalent; can be taken concurrently
<b>Instructor:</b>	<b>John M. Cimbala</b> , Professor of Mechanical Engineering. 234 Reber Building, 814-863-2739, <a href="mailto:jmc6@psu.edu">jmc6@psu.edu</a> , <a href="http://www.mne.psu.edu/cimbala">www.mne.psu.edu/cimbala</a> . Office hours and weekly schedule posted on website.
<b>Assistants</b>	See the course website for a list of teaching assistants and their office hours.

**Course Description:** This course is required for all mechanical engineering students, and is taken in the junior year. It serves as an introduction to the fundamental principles of instrumentation and measurement, along with statistics, and integrates and applies what you have learned in your math, physics, E. Mech., and mechanical and electrical engineering courses. The course includes a 3-hour-per-week hands-on laboratory where you apply the material learned in the lecture. For many students, this may be the first time you have actual hands-on experience with electronics and measurement equipment, such as oscilloscopes, breadboards, function generators, digital data acquisition systems, integrated circuits, strain gages, displacement meters, thermocouples, tachometers, dynamometers, filters, volume flow meters, velocity meters, pressure probes, pressure transducers, etc. You will learn not only how to *use* these devices in the lab, but also the fundamental principles of their operation – *how they work*. Statistical analysis is integrated into the course, especially in the hands-on laboratories, where statistics is used to analyze and interpret acquired data.

**Schedule:** A detailed schedule of lectures, material to read, labs, and homework is available on the course website.

**Web Pages:** The main website for this course is: [www.mne.psu.edu/me345](http://www.mne.psu.edu/me345). Students are expected to check the web site regularly for homework assignments, announcements, and other information. Hardcopies (handouts) of homework assignments will *not* be given in class. Sensitive or copyrighted course material, *homework solutions*, and *grades* will be posted instead on Penn State's ANGEL site at [www.angel.psu.edu](http://www.angel.psu.edu).

**Grading:** All exams and homework assignments are *comprehensive*. Mark your calendars!

<b>Homework</b>	<b>20%</b>	One per week except during exam weeks – expect 12 total – <b>see website</b>
<b>Labs</b>	<b>20%</b>	One per week except during exam weeks – expect 12 total – <b>see website</b>
<b>Exam 1</b>	<b>20%</b>	Tentatively <b>Wednesday evening, February 20 – 102 Forum, 8:15-10:15 p.m.</b>
<b>Exam 2</b>	<b>20%</b>	Tentatively <b>Wednesday evening, April 2 – 102 Forum, 8:15-10:15 p.m.</b>
<b>Final Exam</b>	<b>20%</b>	<b>Room, date, and time to be announced on website</b>

**Grade Disputes:** If a student feels that an exam, lab, or homework set was graded unfairly, or if there is an error in the grading, it should be brought to the attention of the grader (TA for homework and lab reports, Professor Cimbala for exams) within one week after the graded material is handed back. Scores will *not* be reconsidered beyond one week after they are handed back, except under unusual circumstances.

**Cheating Policy:** Cheating is not tolerated in this course. Students should refer to the College of Engineering's Academic Integrity website at <http://www.engr.psu.edu/CurrentStudents/acadinteg.asp> which explains what behaviors are in violation of academic integrity, and the review process for such violations. Specifically for this course:

- First offense: Zero score for the item in question.
- Second offense: Failure of the course.

